

WHAT IS CLAIMED IS:

1. A thermal transfer element for transferring a black matrix pattern to a receptor, comprising:
 - 5 a substrate;
 - a light-to-heat conversion layer disposed on the substrate; and
 - a transfer layer comprising carbon black and having an optical density of at least 3 for white light and a thickness of no more than 1.5 μm , wherein the thermal transfer element is configured and arranged upon transfer of a portion of the transfer layer to a receptor to provide a black matrix pattern having an average resistivity of at least 1×10^{10} ohm-cm.
- 10 2. The thermal transfer element of claim 1, wherein the transfer layer comprises 40 to 55 wt.% carbon black.
- 15 3. The thermal transfer element of claim 1, wherein the carbon black has an average particle size ranging from 20 to 35 nm.
- 20 4. The thermal transfer element of claim 1, wherein the carbon black has 2 to 6 wt.% volatile material.
- 25 5. The thermal transfer element of claim 1, wherein the carbon black is capable of absorbing 45 to 70 mL of dibutyl phthalate per 100 grams of carbon black.
- 30 6. The thermal transfer element of claim 1, further comprising a color-changing coating disposed on a surface of the substrate opposite the light-to-heat conversion layer, wherein the color-changing coating changes colors upon exposure to heat.
7. The thermal transfer element of claim 1, further comprising a color-changing coating disposed between the light-to-heat conversion layer and the substrate, wherein the color-changing coating changes colors upon exposure to heat.

8. The thermal transfer element of claim 1, wherein, when transferred to a receptor, the transfer layer is configured and arranged to provide a black matrix pattern having an average resistivity of at least 1×10^{13} ohm-cm.

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9. The thermal transfer element of claim 1, wherein the transfer layer has a thickness of no more than 1.1 μ m.

10. The thermal transfer element of claim 1, wherein the transfer layer 10 comprises no more than 47 wt.% carbon black.

11. The thermal transfer element of claim 1, wherein, when transferred to a receptor, the transfer layer is configured and arranged to provide a black matrix pattern having an average resistivity of at least 5.1×10^{11} ohm-cm.

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12. The thermal transfer element of claim 1, wherein the transfer layer comprises 40 to 50 wt.% carbon black.

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13. A thermal transfer element for transferring a pattern to a receptor, comprising:

a substrate;

a light-to-heat conversion layer disposed on the substrate;

a color-changing coating, wherein the color-changing coating changes colors upon exposure to heat; and

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a transfer layer configured and arranged for imagewise transfer of a portion of the transfer layer to the receptor.

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14. The thermal transfer element of claim 13, wherein the color-changing coating is disposed on a surface of the substrate opposite the light-to-heat conversion layer.

15. The thermal transfer element of claim 13, wherein the color-changing coating is disposed between the light-to-heat conversion layer and the substrate.

16. The thermal transfer element of claim 13, wherein the transfer layer comprises carbon black.

5 17. The thermal transfer element of claim 16, wherein, when transferred to a receptor, the transfer layer is configured and arranged to provide a black matrix pattern having an average resistivity of at least 1×10^{10} ohm-cm, an optical density of at least 3, and a thickness of no more than 1.5 μm .

10 18. The thermal transfer element of claim 13, wherein, prior to changing color upon exposure to heat, the color-changing layer is configured and arranged to be substantially transparent to light convertible by the light-to-heat conversion layer to heat.

15 19. The thermal transfer element of claim 13, wherein, subsequent to changing color upon exposure to heat, the color-changing layer is configured and arranged to at least partially reflect or absorb light convertible by the light-to-heat conversion layer to heat.

20 20. The thermal transfer element of claim 13, wherein the color-changing layer comprises a leuco dye.